

Figure 1A (Prior Art)

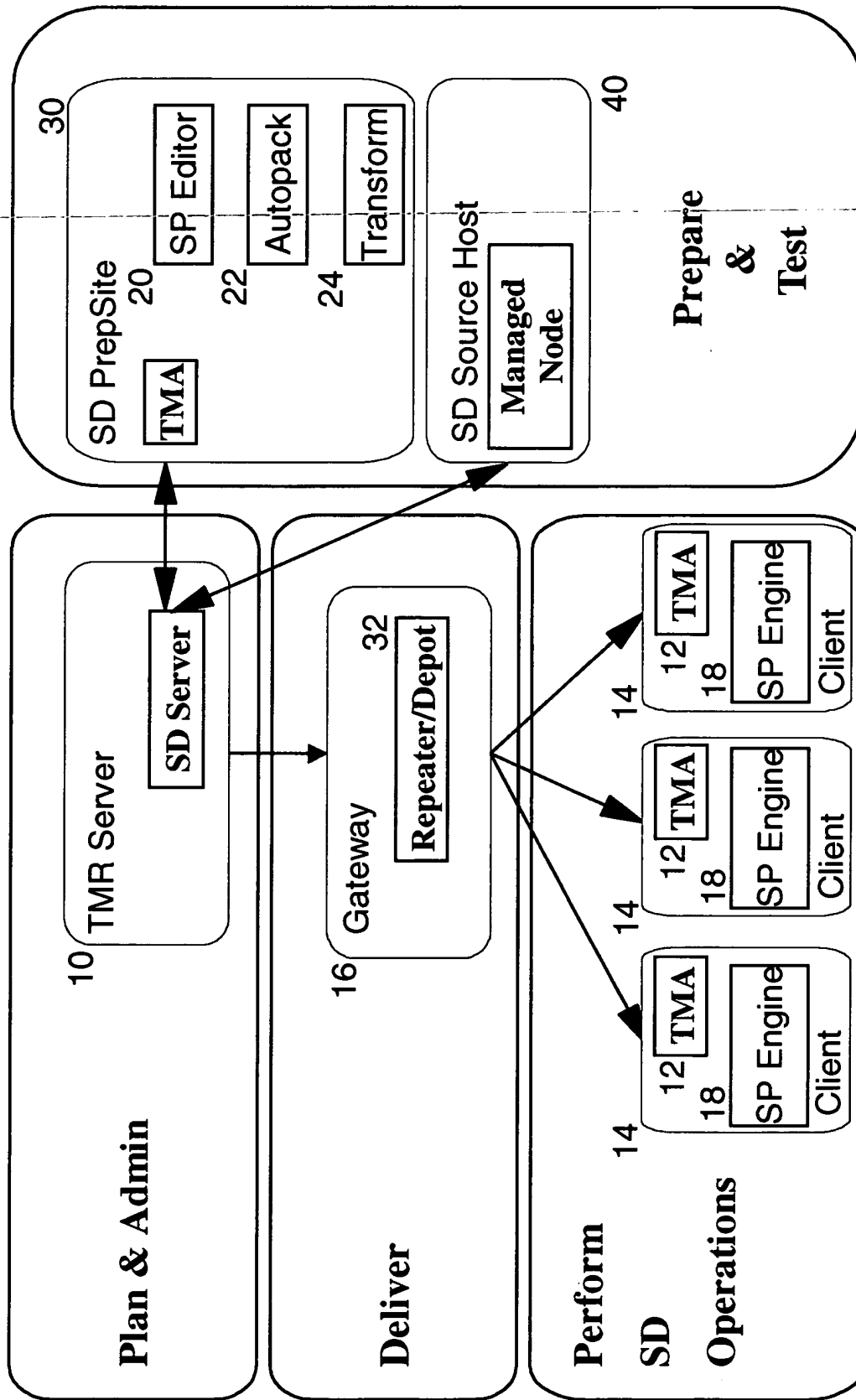


Figure 1B

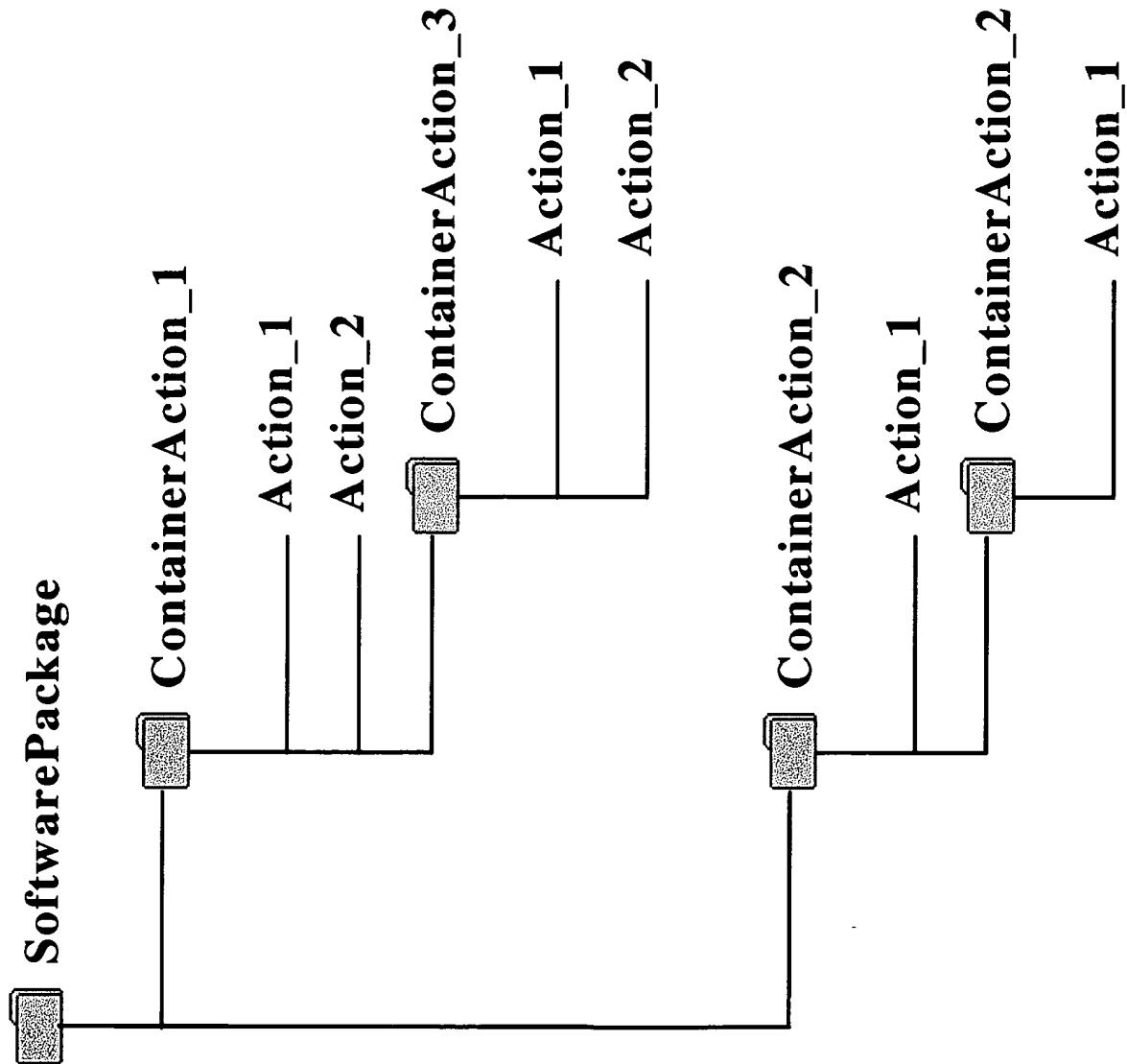


Figure 2

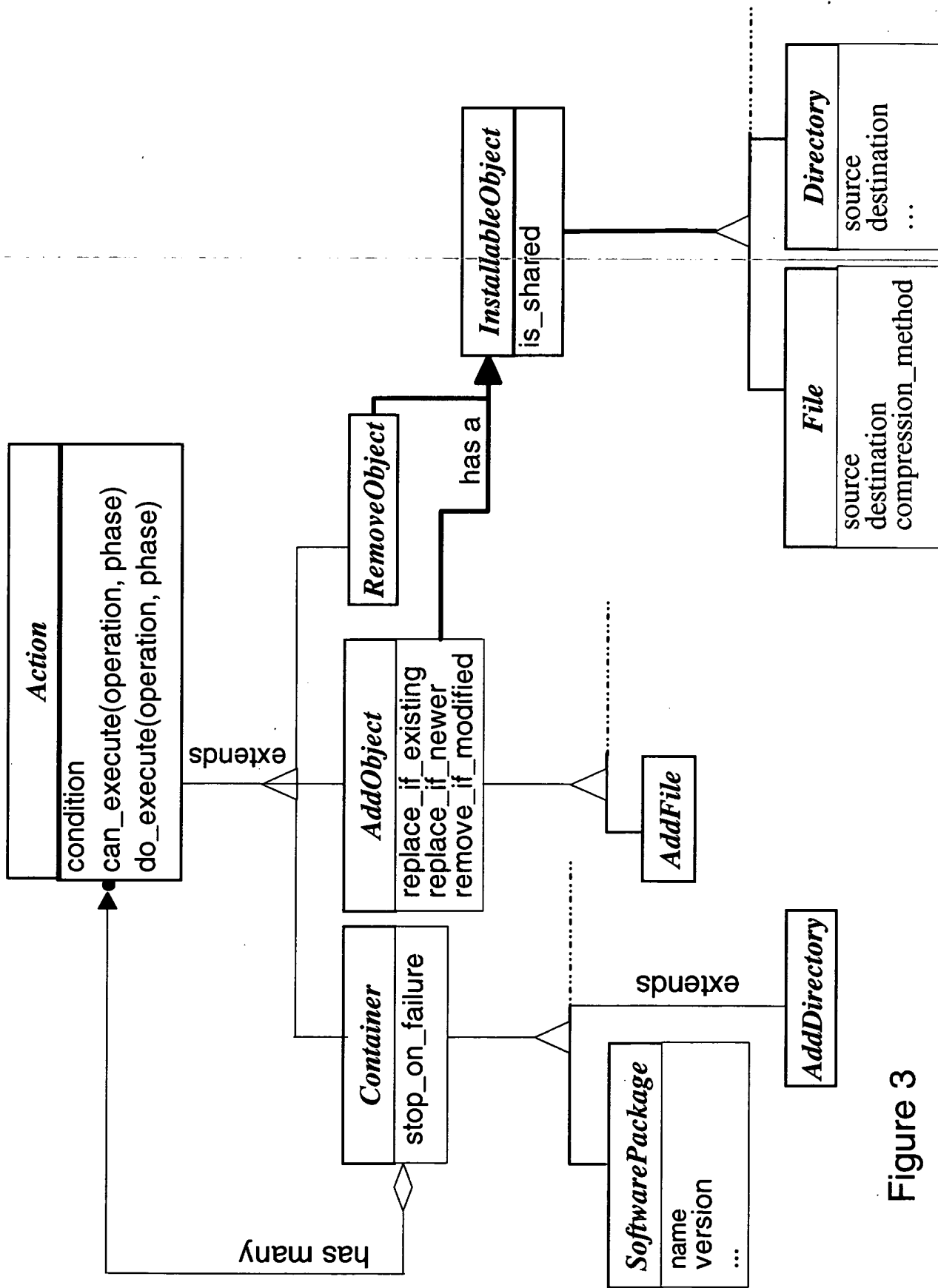


Figure 3

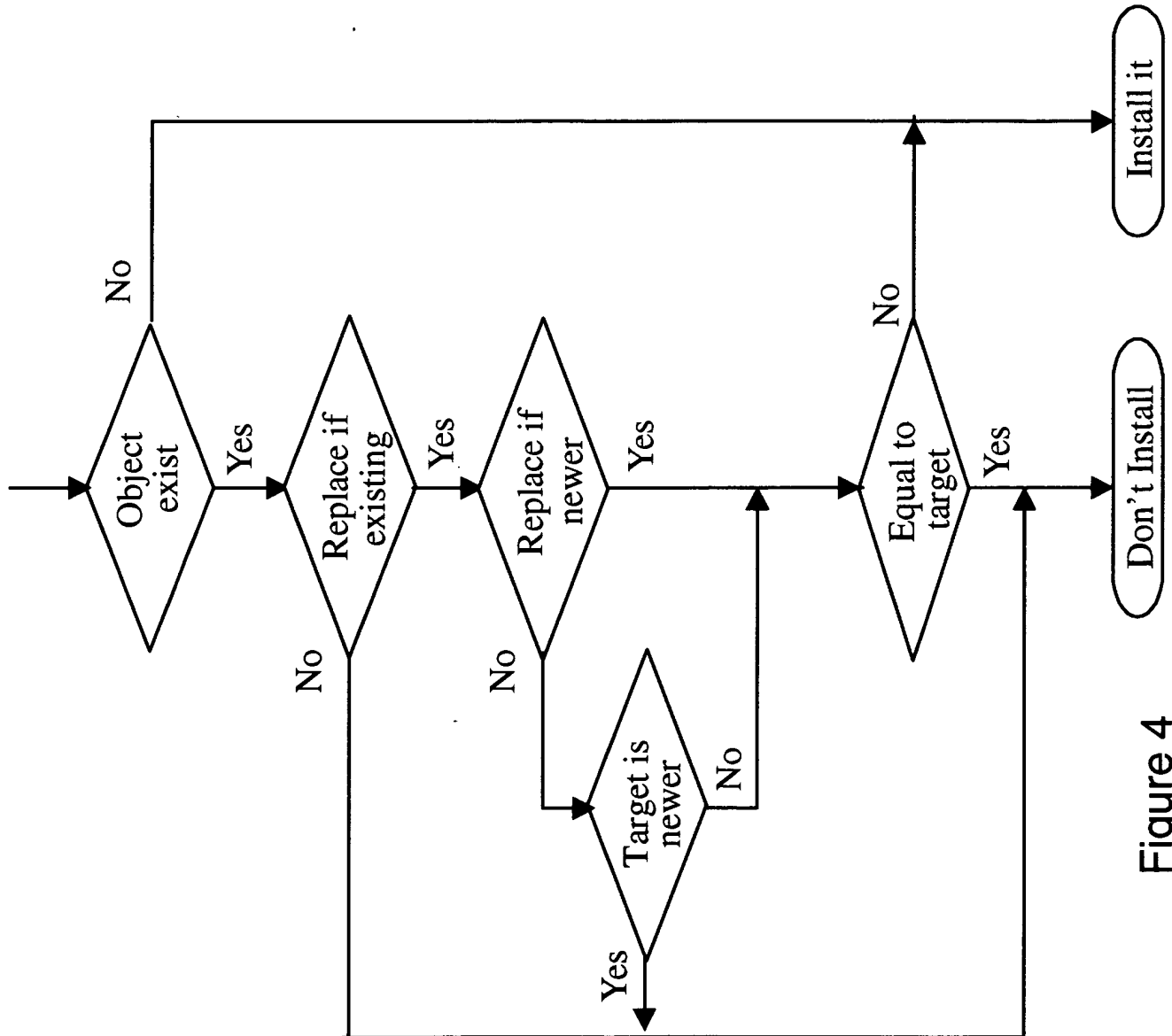


Figure 4

FIG. 4

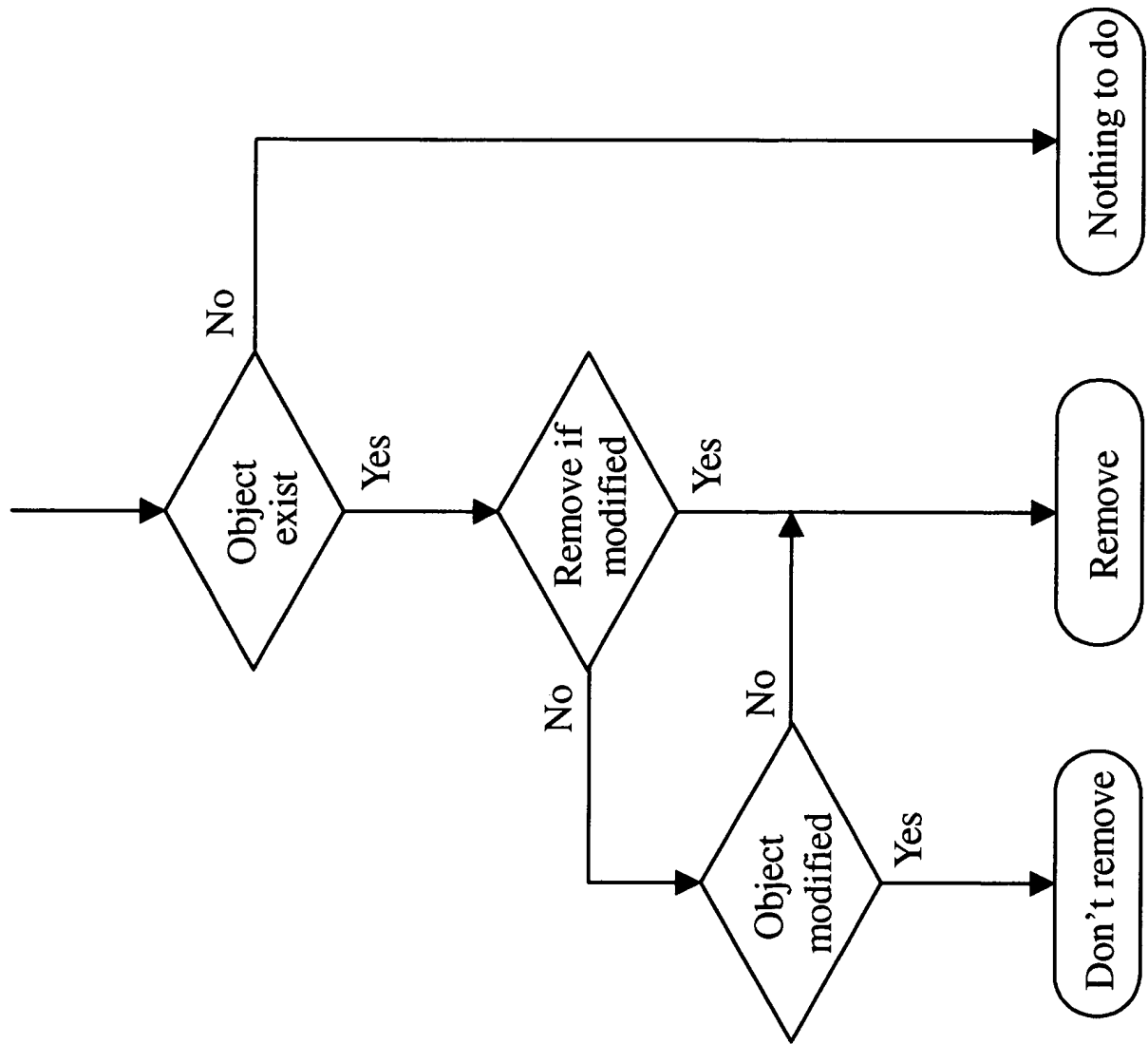


Figure 5

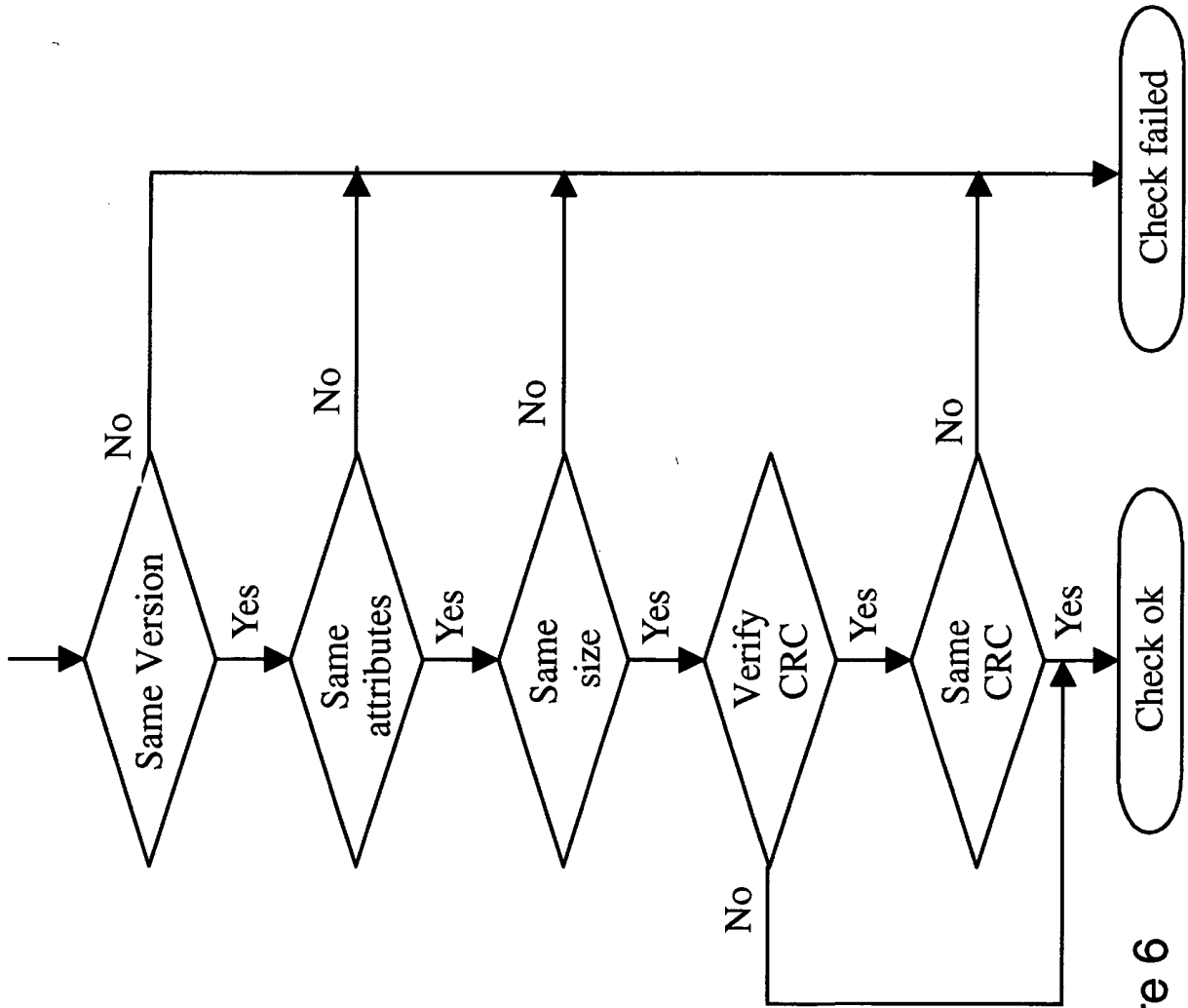


Figure 6

| | |
|---------------------------|---|
| Object related actions | Registry Key and Value Shell Folder and Shortcut INI file Section and Item NT Service Profile Item Desktop Object, Folder, Program, Shadow Directory and File Text file line, command, token Symbolic link |
| System actions and Checks | Restart Check disk space |
| Program actions | Execute user program Execute MS Setup program Execute InstallShield program Execute CID Program |

Figure 7

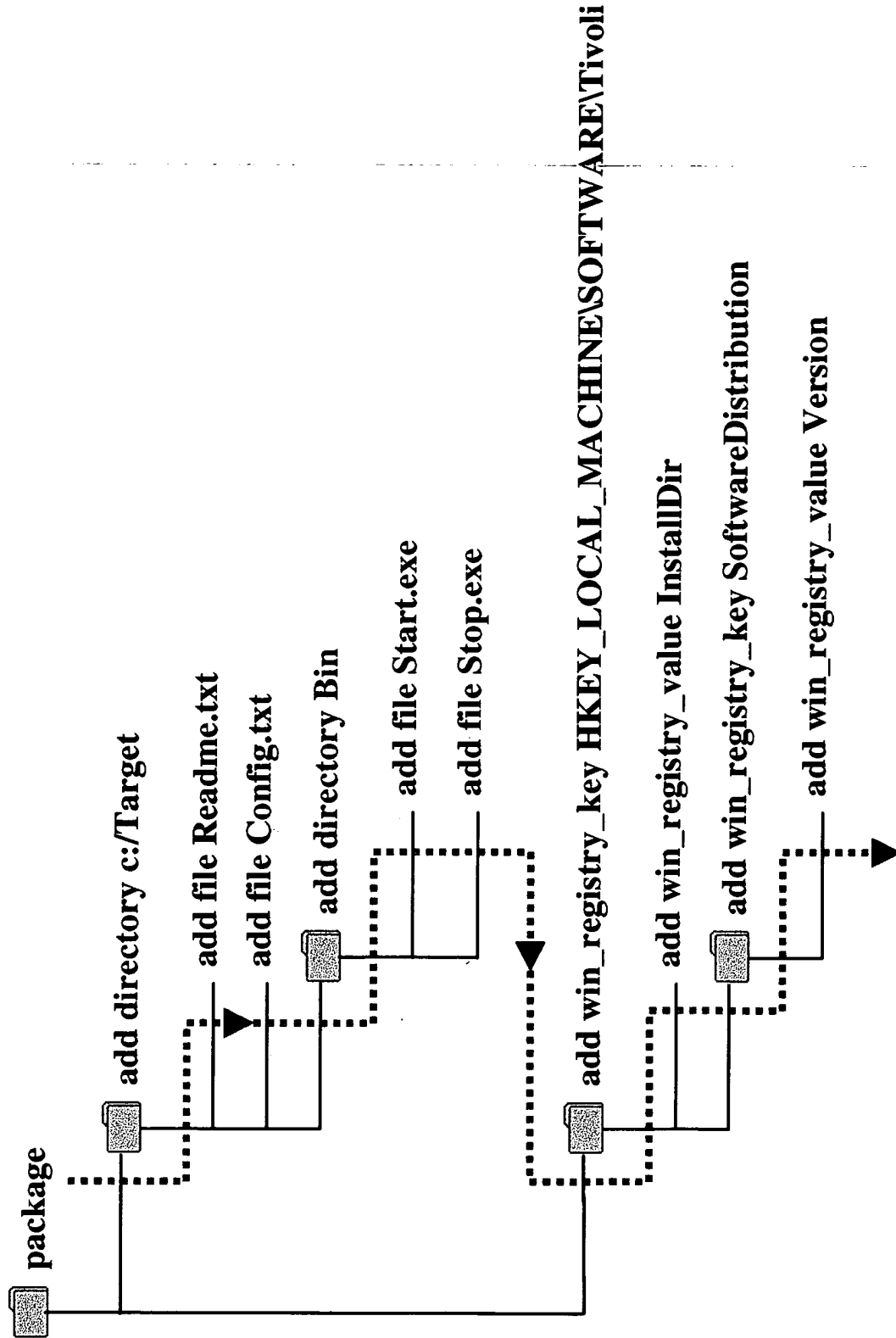


Figure 8

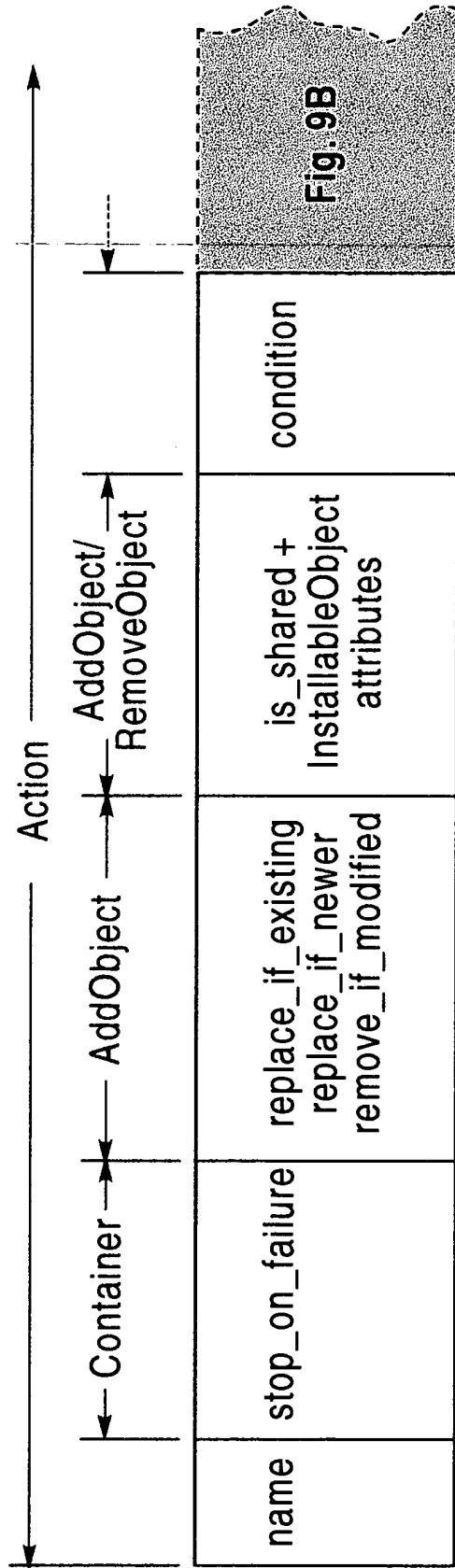


Figure 9A

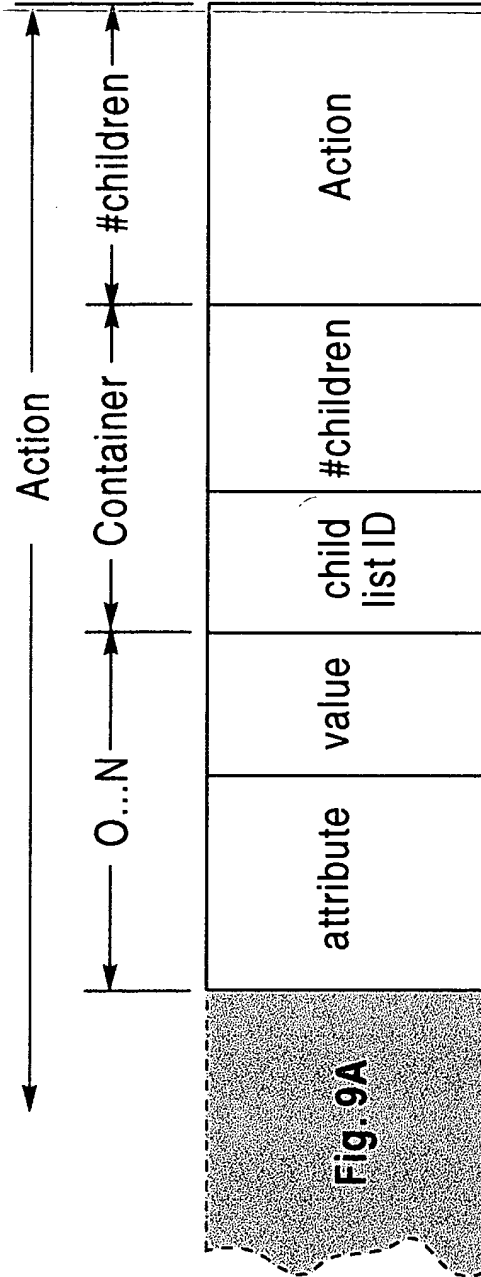


Figure 9B

"TME 10 Software Package v4.0 - SPDF"←Signature of SPD

package

name = "Software Package"
version = "1.0"

check_disk_space

volume = C:,25M
volume = D:,35M

end

generic_container

Container stanza

condition = "\${os_name} == Windows_NT"

add win_registry_key

parent_key = HKEY_LOCAL_MACHINE\SOFTWARE
key = "Registry Key"

win_registry_key

key = "Nested Registry Key"←Attribute value pair

end

end

end

end

Figure 10

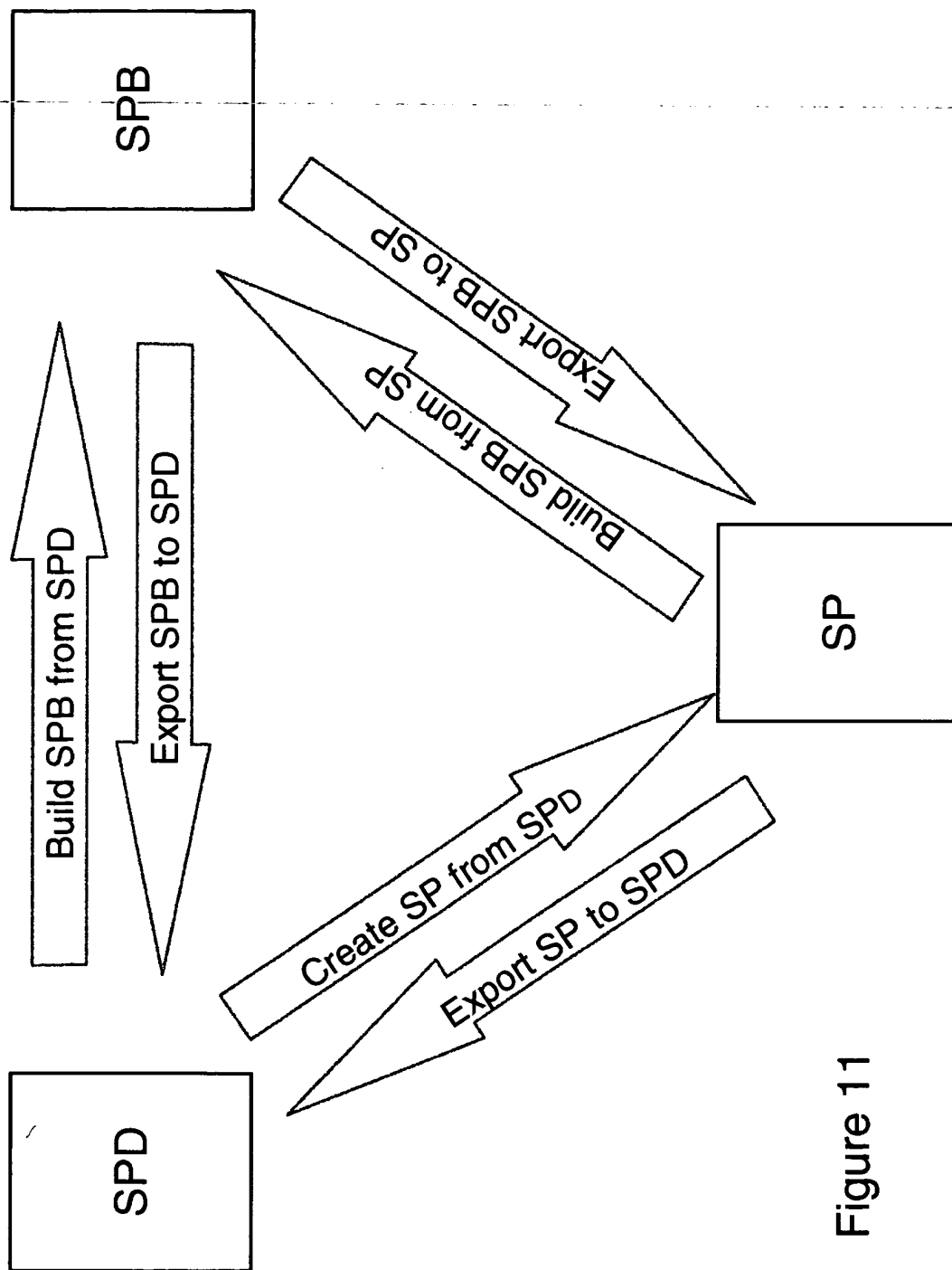


Figure 11

FIG. 11

```
...
add directory
  location = c:/Winnt/System32/
  destination = c:/Winnt/System32/
...
add directory
  location = c:/Winnt/System32/
  destination = $(system_dir)
...
file
  name = MyApp.DLL
end
end
...
add directory
  location = c:/MyApp
  destination = c:/MyApp
  descend_dirs = y
end
...
add directory
  location = c:/MyApp
  destination = $(target_dir)
  descend_dirs = y
end
...
```

Figure 12A

Figure 12B

```
...
add directory
    condition = "$os_name) LIKE 'Win*'"
    location  = c:/winnt/system32
    destination = $(system_dir)
    file
        name = MyApp.DLL
    end
end
add directory
    condition = "$os_name) == SunOS OR $(os_name) == AIX"
    location  = c:/unix/
    destination = $(home_path)
    file
        name = MyApp.a
    end
end
...
```

Figure 12C

```
...
add directory
    location      = c:/MyApp
    destination  = $(target_dir)
    file
        name = MyApp.CFG
        substitute_variables = y
    end
end
...
```

Figure 13A

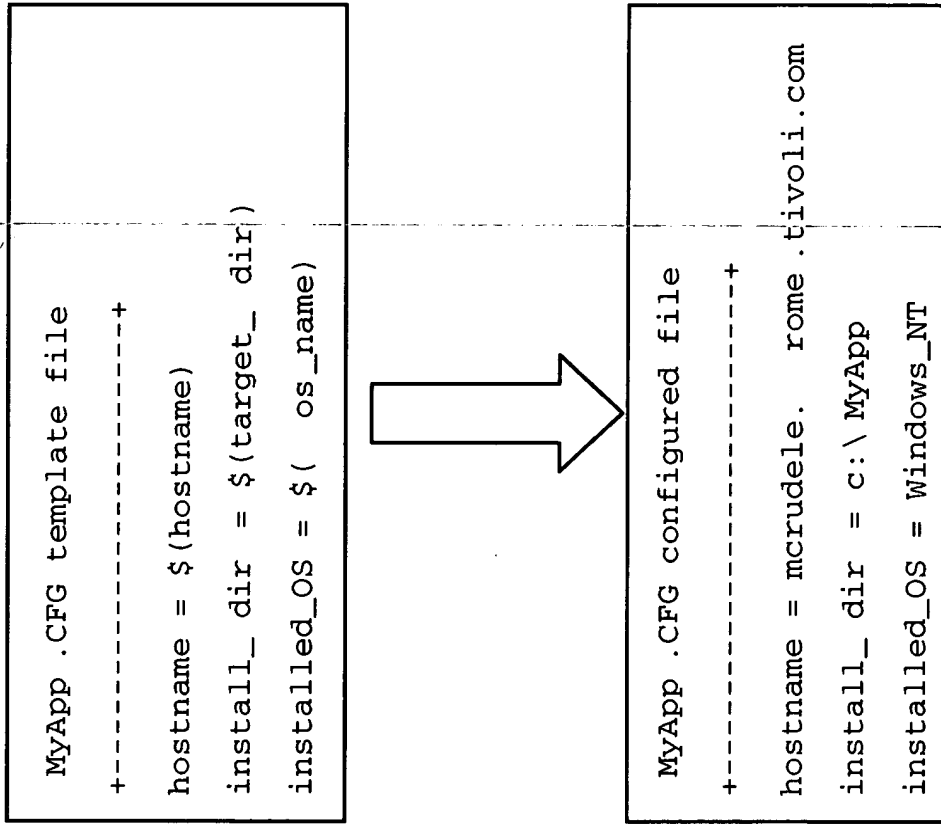


Figure 13B

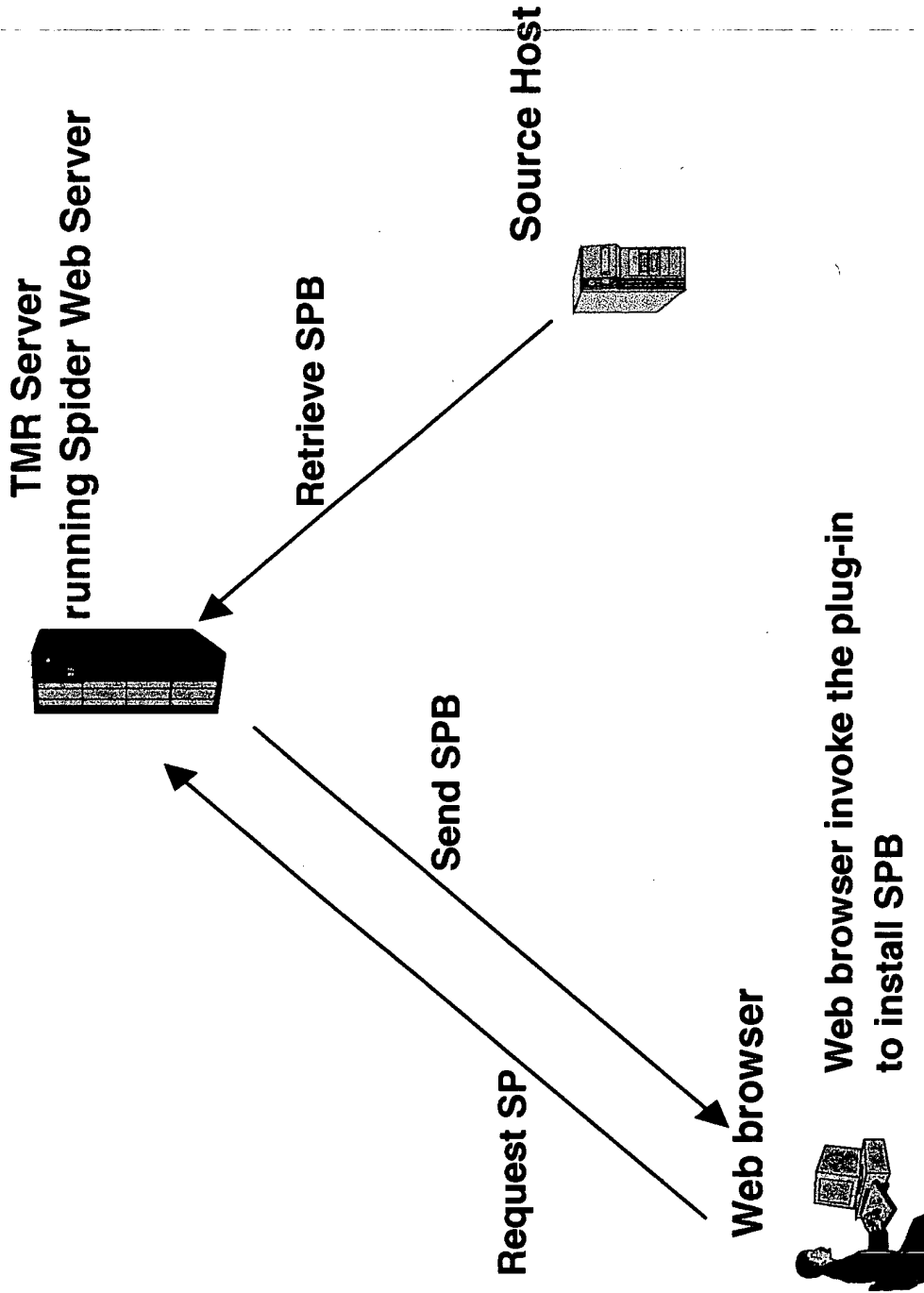


Figure 14

| | | |
|----------|------------------------------------|--|
| wdcrtsp | Create a SPB file from a SPD file | |
| wdexptsp | Export a SPB file into SPD file | |
| wbldsp | Build a SPB file from a SP | |
| autopack | Run AutoPack snapshots/differences | |
| wdinstsp | Install a SPB | |
| wdrmvsp | Remove a SP | |
| wdcmmtsp | Commit a SP | |
| wdundosp | Undo a SP Install/Remove | |
| wdacptsp | Accept an undoable Install/Remove | |
| wdversp | Verify the state of a SP | |

Figure 15

| | |
|----------|---------------------------------------|
| wimpspo | Associate a Software Package to a SPO |
| wconvspo | Convert the format of a SPO |
| wexpspo | Export a SPO into SPD file |
| wldsp | Loads SP on one or more Depots |
| wuldsp | UnLoad a SP from one or more Depots |
| winstsp | Install a SP |
| wremovsp | Remove a SP |
| wcommtsp | Commit a SP |
| wundosp | Undo a SP Install/Remove |
| waccptsp | Accept an undoable Install/Remove |
| wversp | Verify the state of a SP |

Figure 16

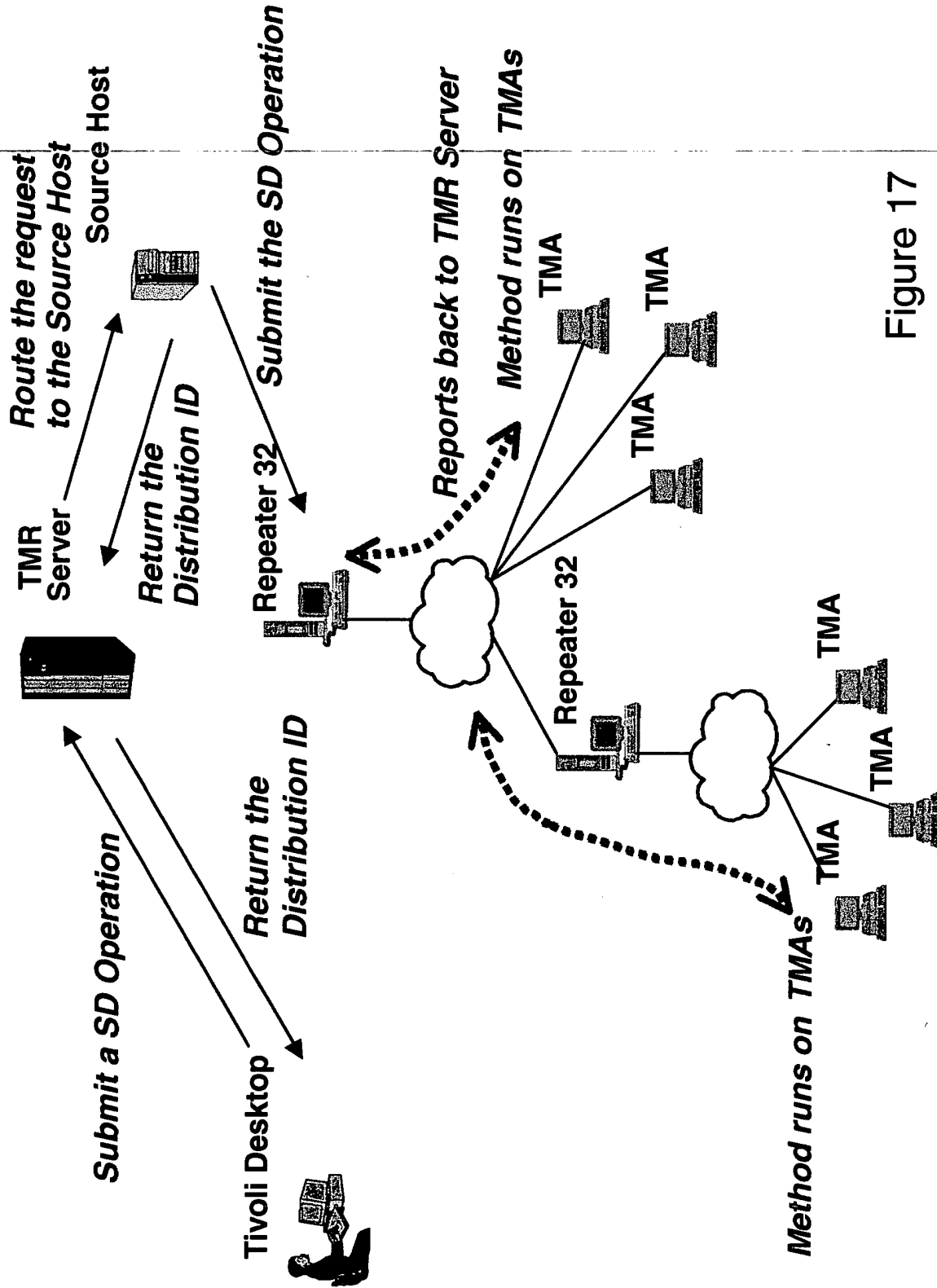


Figure 17

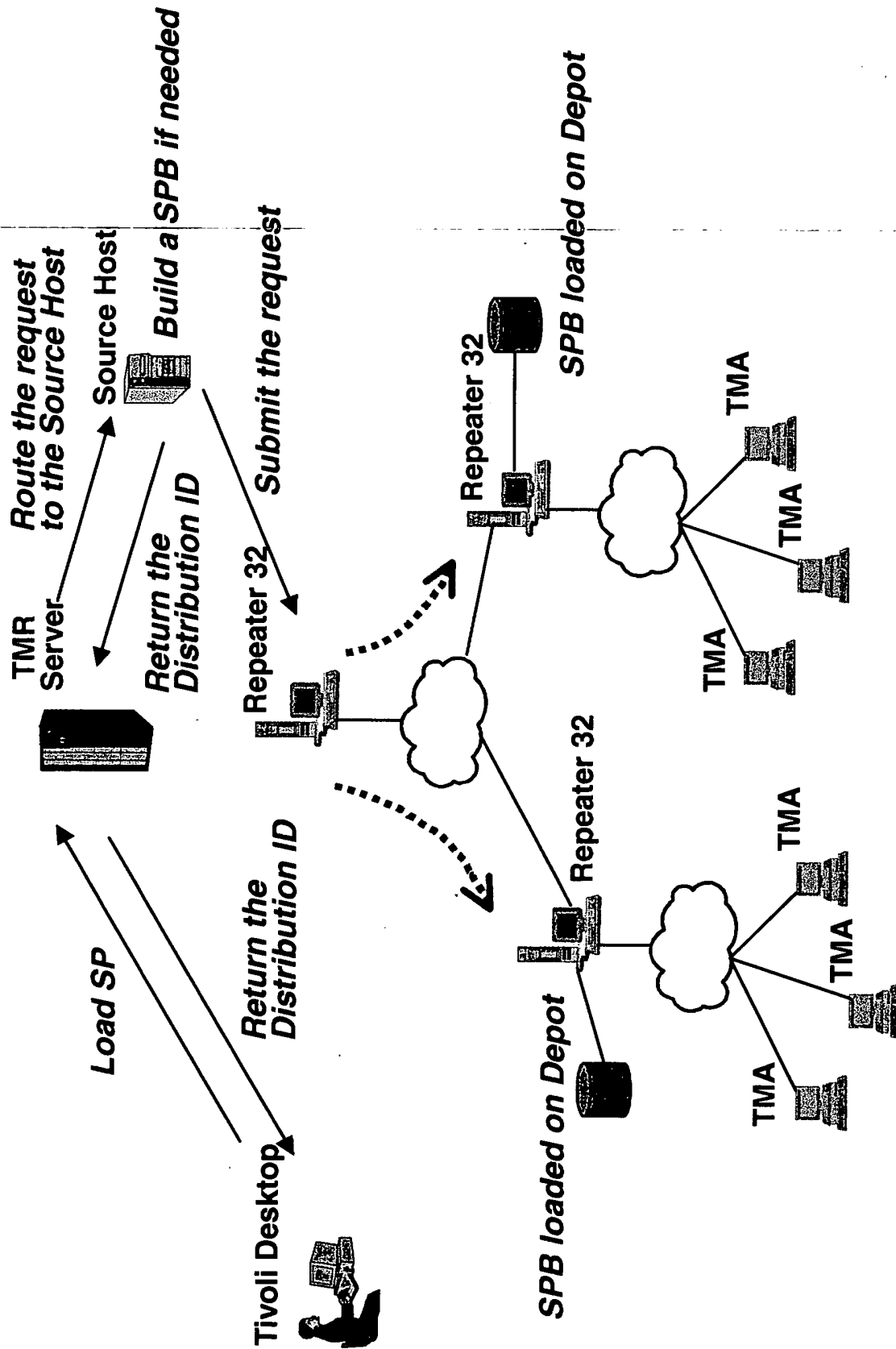


Figure 18

| | Install | Remove | Accept | Undo | rollBack | Commit | Verify |
|---------------------------|---------|--------|--------|------|----------|--------|--------|
| transactional | X | X | | X | | | |
| undoable | X | X | | | | | |
| undoable in transactional | X | X | | | | | |
| transactional & undoable | X | X | | | | | |

Figure 19

| Operation | State | Undo state | Reboot state | Flag |
|-----------|-----------|------------|------------------|----------|
| Install | Prepared | Prepared | ReBoot requested | Changing |
| Remove | Committed | Undoable | - | In Error |
| | | Restored | | - |
| | | - | | |

IC--- means that an Install has been committed

ICU-- means that an Install has been committed and can be undone

IP-BC means that an Install has been prepared and it will be committed during the next reboot

RCU-- means that a Remove has been committed but it can be undone

IC--E means that an Install has been committed but the SP is in error, so the application may not work properly

Figure 20

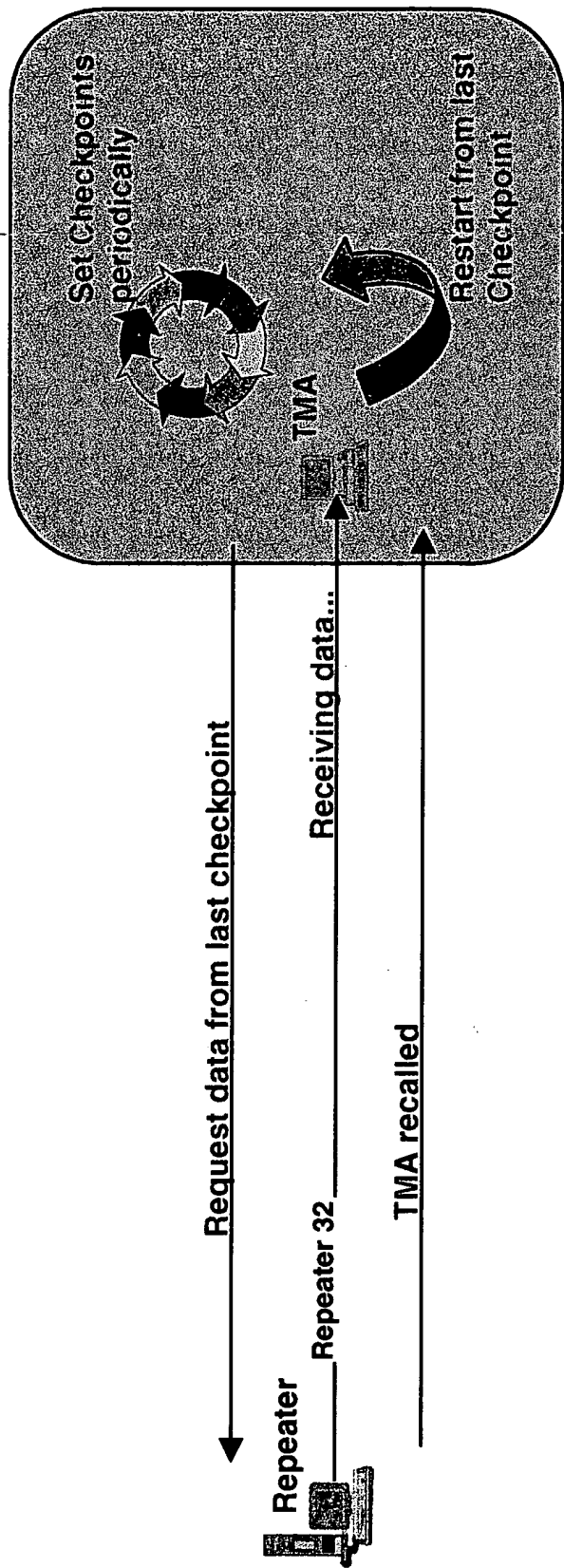


Figure 21

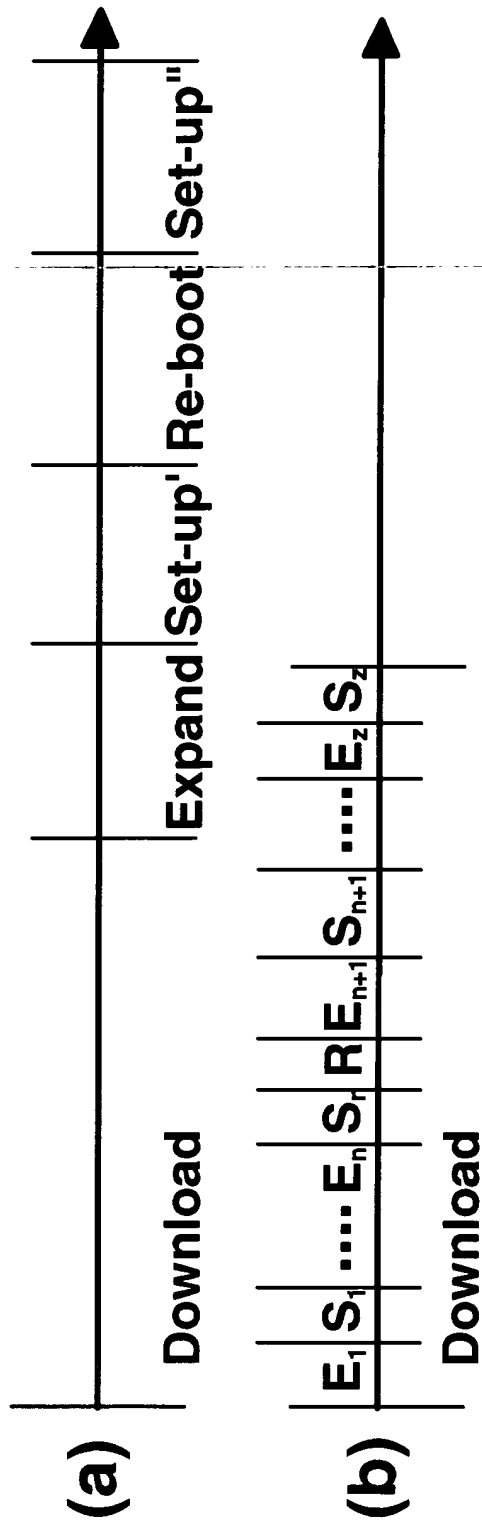


Figure 22

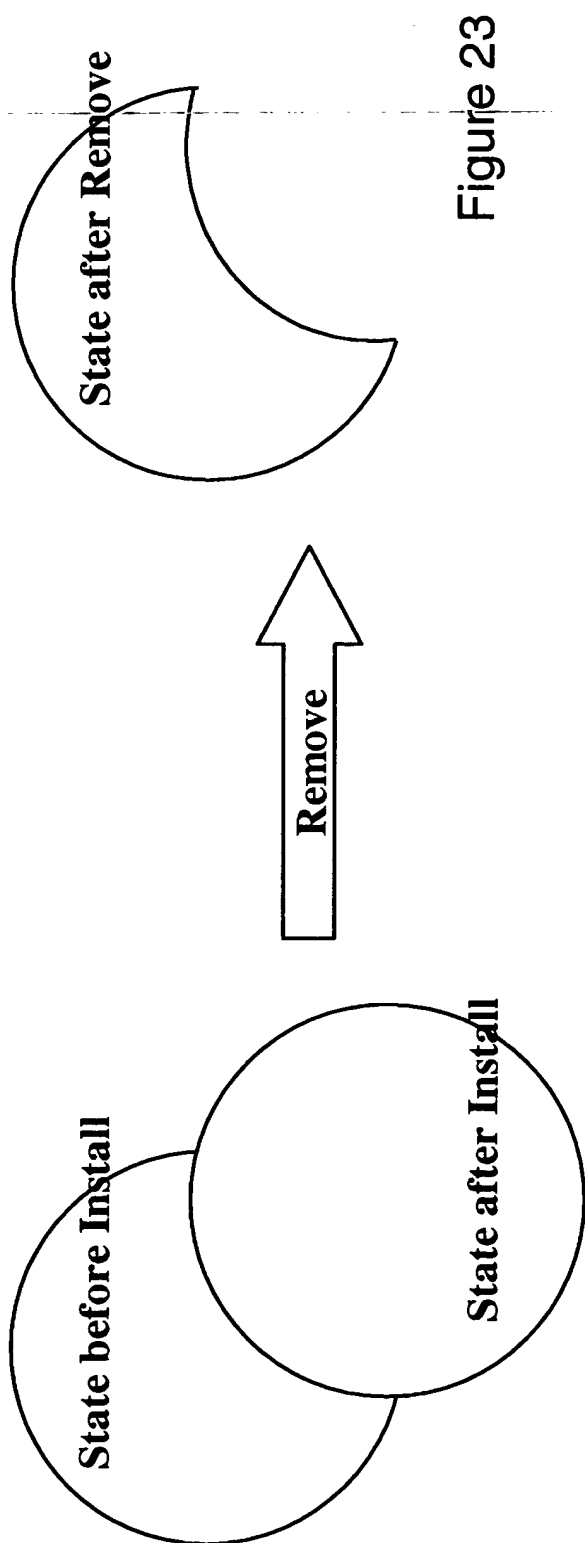


Figure 23

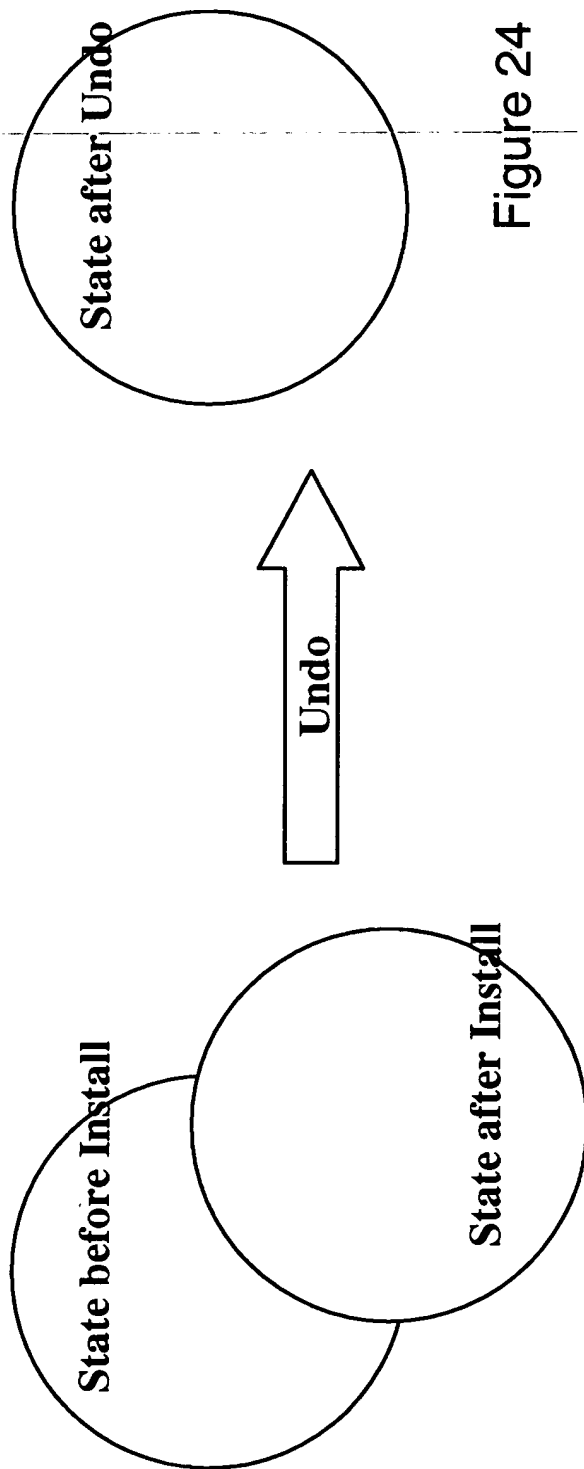


Figure 24

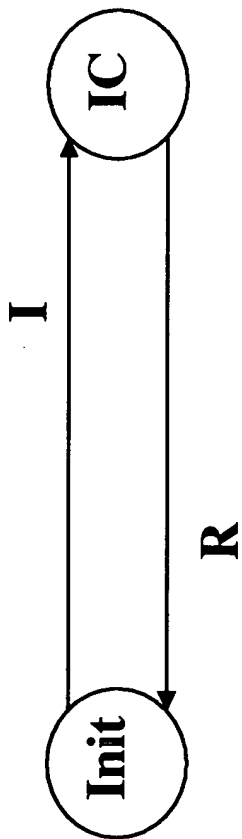


Figure 25A

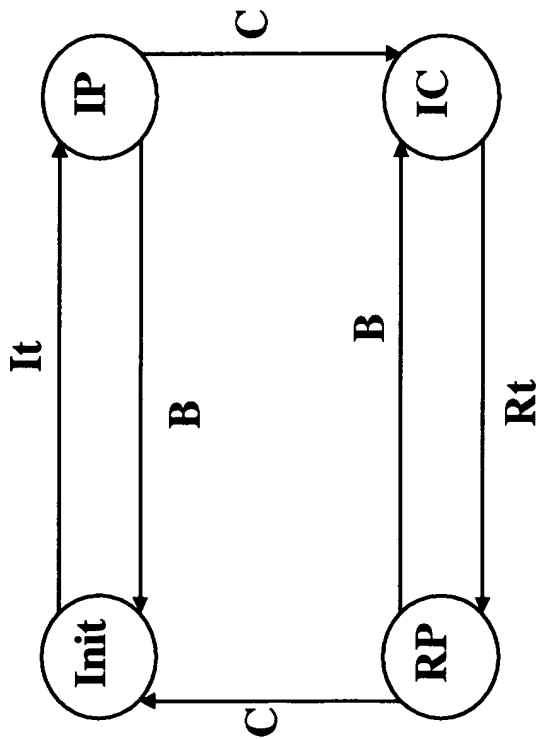


Figure 25B

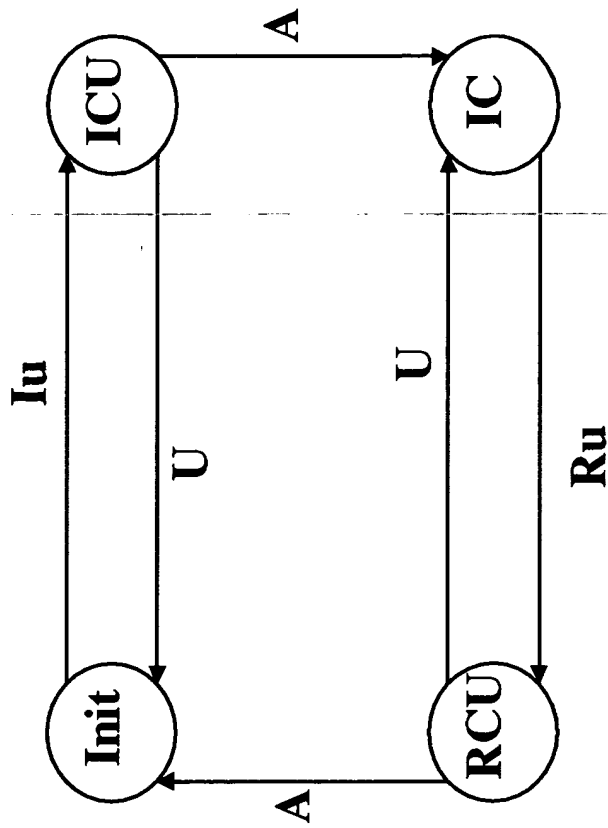


Figure 25C

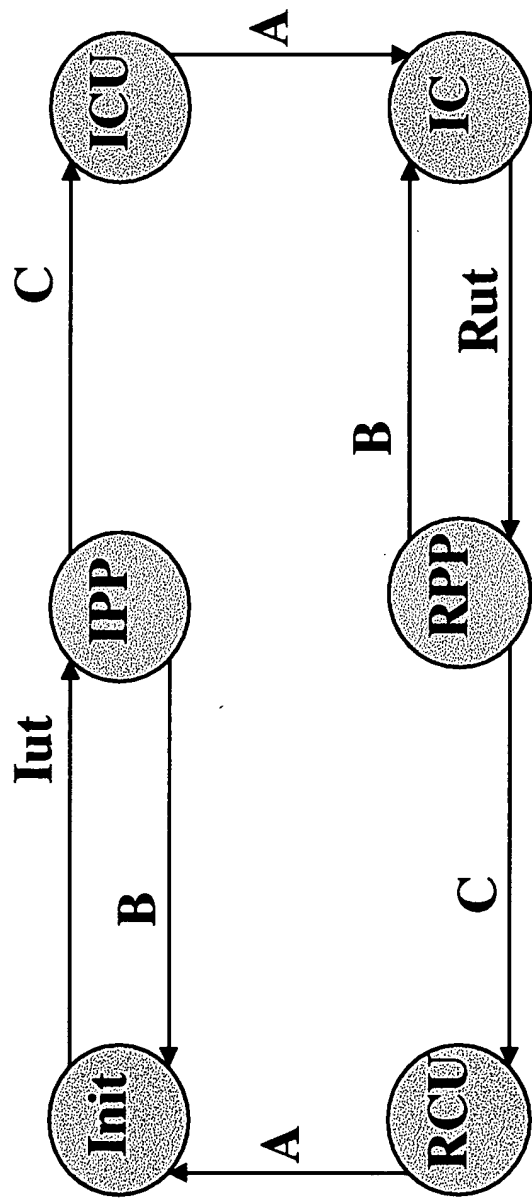


Figure 25D

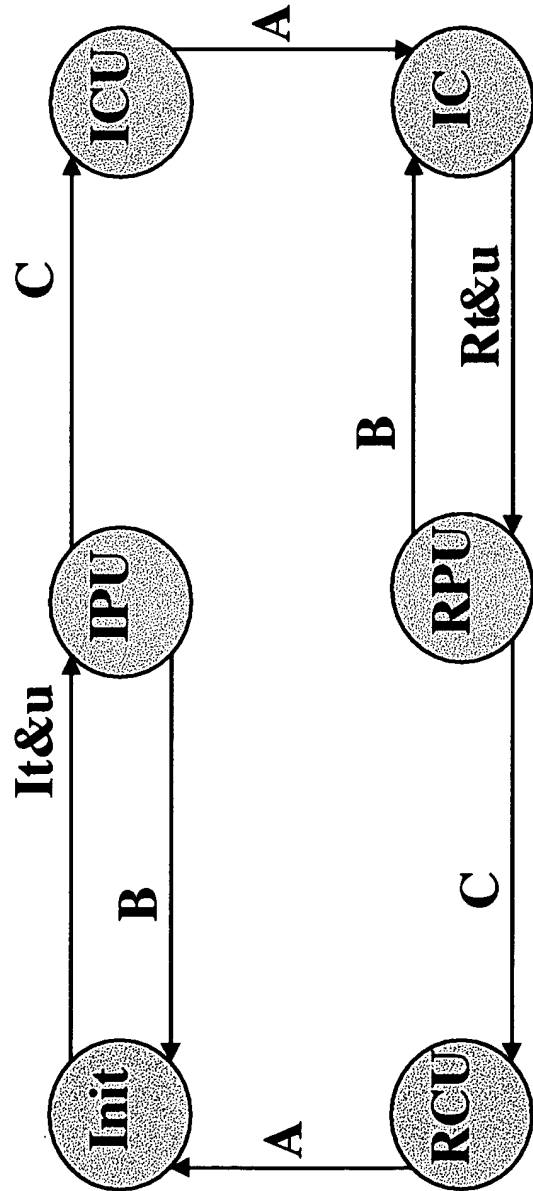


Figure 25E

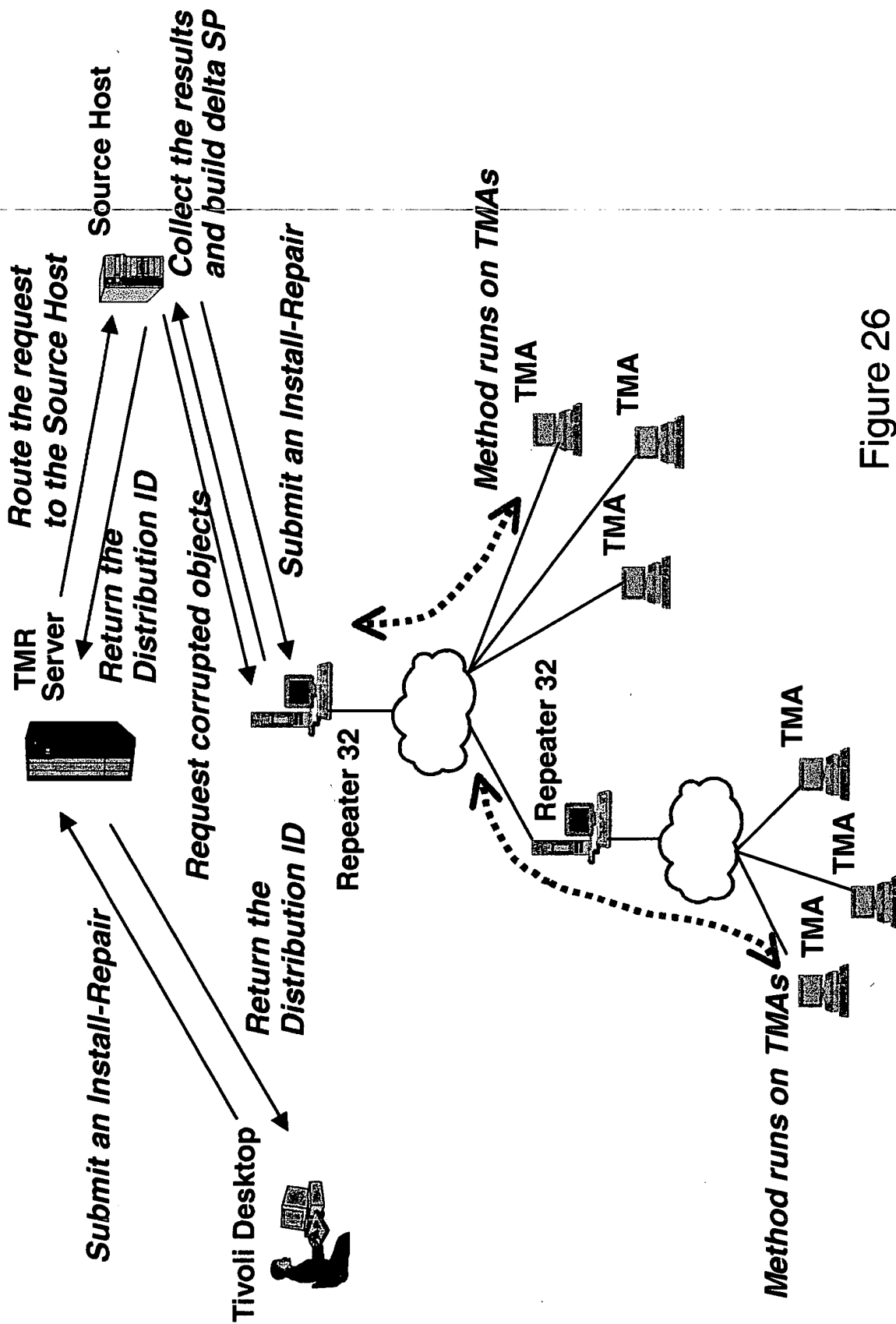


Figure 26

```
...
## Mount the image directory
execute_user_program
during_install
    name      = $(system_dir)/NET.EXE
    arguments = "USE $(freedrive_01) $(remote_name)"
end
end
## Run the setup to perform the installation
execute_mssetup_program
during_install
    name      = $(freedrive_01)/setup.exe
    arguments = "/Q1 /B1"
end
end
## U-mount the image directory
execute_user_program
during_install
    name      = $(system_dir)/NET.EXE
    arguments = "$(freedrive_01) /d"
end
end
...
```

Figure 27